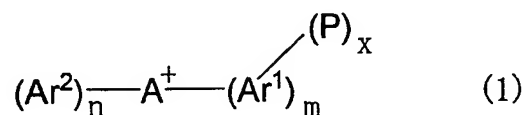


Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Previously Presented) An onium salt compound having a cation moiety of the following formula (1),



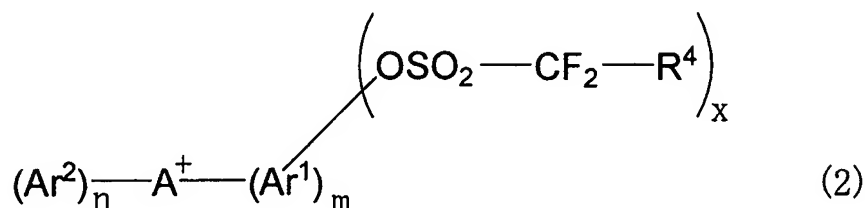
wherein A represents an iodine atom or a sulfur atom, when A is an iodine atom, m is 1 or 2 and n is 0 or 1, provided that (m+n)=2, and x is an integer of 1-10, and when A is a sulfur atom, m is 1-3 and n is 0-2, provided that (m+n) = 3, and x is an integer of 1-15; Ar¹ represents a substituted or unsubstituted aromatic hydrocarbon group having 6-20 carbon atoms with a valence of 1 to (x+1) or a substituted or unsubstituted heterocyclic group having 3-20 atoms with a valence of 1 to (x+1), Ar² represents a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms; and the x-number of P groups bonding to one or more of the m-number of Ar¹ groups individually represent -O-SO₂R¹, -O-S(O)R², or -SO₂R³, wherein R¹ and R² individually represent a hydrogen atom, a substituted or unsubstituted

Application Serial No. 10/743,809

alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group $-N(R')_2$, wherein R' individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or two R' groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms and wherein R^3 represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group $-N(R')_2$, wherein R' individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or two R' groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms.

2. (Original) The onium salt compound according to claim 1, wherein A in formula (1) is a sulfur atom.

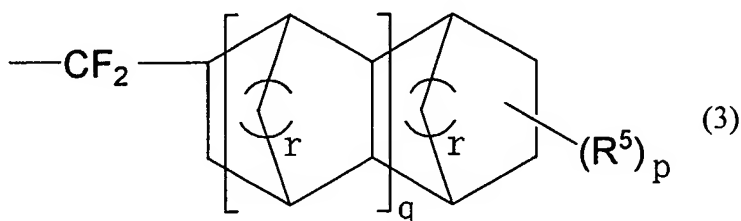
3. (Previously Presented) An onium salt compound having a cationic moiety of the following formula (2),



wherein A represents an iodine atom or a sulfur atom, when A is an iodine atom, m is 1 or 2 and n is 0 or 1, provided that (m+n)=2, and x is an integer of 1-10, and when A is a sulfur atom, m is 1-3 and n is 0-2, provided that (m+n) = 3, and x is an integer of 1-15; Ar¹ represents a substituted or unsubstituted aromatic hydrocarbon group having 6-20 carbon atoms with a valence of 1 to (x+1) or a substituted or unsubstituted heterocyclic group having 3-20 atoms with a valence of 1 to (x+1), Ar² represents a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms and R⁴ represents a hydrogen atom, fluorine atom, nitro group, cyano group, or a monovalent organic group having 1-20 carbon atoms.

4. (Original) The onium salt compound according to claim 3, wherein A in formula (2) is a sulfur atom.

5. (Original) The onium salt compound according to claim 3, wherein R^4 in the formula (2) is a group of the following formula (3),

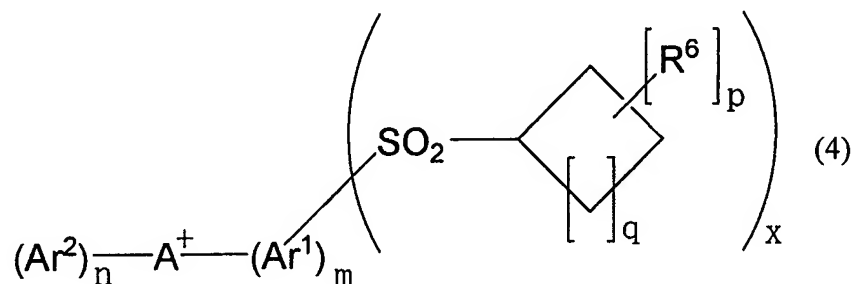


wherein R^5 represents a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group $-N(R^{2'})_2$, wherein $R^{2'}$ individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted, monovalent heterocyclic group having 3-20 atoms, or two $R^{2'}$ groups form, in

combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms, p is an integer of 0-16, q is an integer of 0-8, and r is an integer of 1-3.

6. (Original) An onium salt compound according to claim 5, wherein both p and q are 0 and both r's are 1

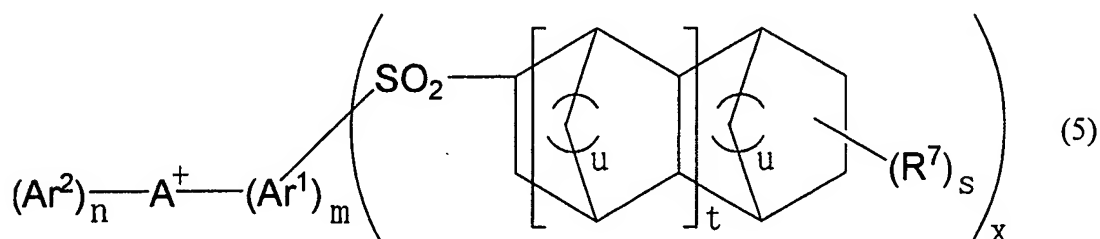
7. (Previously Presented) An onium salt compound having a cationic moiety represented by the following formula (4)



wherein A represents an iodine atom or a sulfur atom, when A is an iodine atom, m is 1 or 2 and n is 0 or 1, provided that (m+n)=2, and x is an integer of 1-10, and when A is a sulfur atom, m is 1-3 and n is 0-2, provided that (m+n) = 3, and x is an integer of 1-15; Ar¹ represents a substituted or unsubstituted aromatic hydrocarbon group having 6-20 carbon atoms with a valence of 1 to (x+1) or a substituted or unsubstituted heterocyclic group having 3-20 atoms with a valence of 1 to (x+1), Ar² represents a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms; p is an integer of 0-16; q is an integer of 0-8; and R⁶

represents a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group $-N(R^{3'})_2$, wherein $R^{3'}$ individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted, monovalent heterocyclic group having 3-20 atoms, or two $R^{3'}$ groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms.

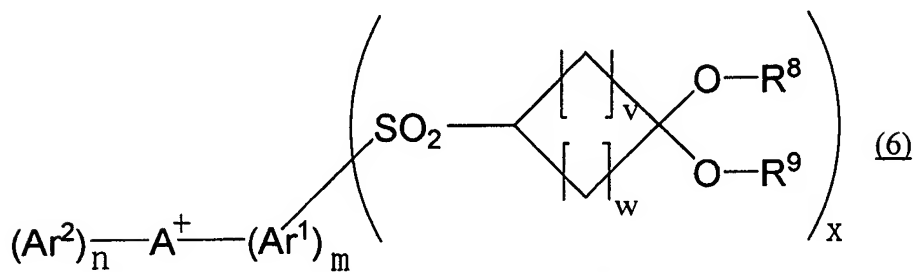
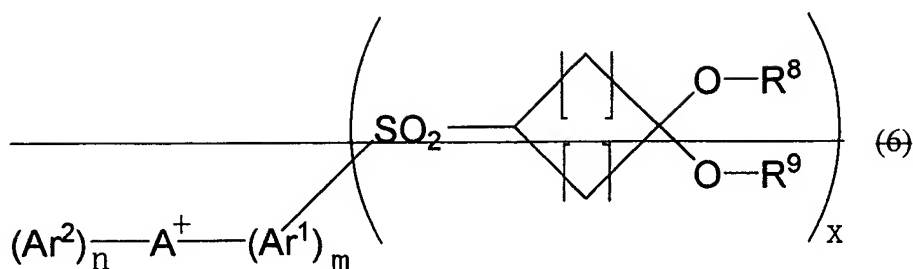
8. (Previously Presented) An onium salt compound having a cationic moiety represented by the following formula (5) ,



wherein A represents an iodine atom or a sulfur atom, when A is an iodine atom, m is 1 or 2 and n is 0 or 1, provided that $(m+n)=2$, and x is an integer of 1-10, and when A is a sulfur atom, m is 1-3 and n is 0-2, provided that $(m+n) = 3$, and x is an integer of 1-15; Ar^1 represents a substituted or unsubstituted aromatic hydrocarbon group having 6-20

carbon atoms with a valence of 1 to (x+1) or a substituted or unsubstituted heterocyclic group having 3-20 atoms with a valence of 1 to (x+1), Ar² represents a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms; R⁷ represents a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group -N(R^{4'})₂, wherein R^{4'} individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted, monovalent heterocyclic group having 3-20 atoms, or two R^{4'} groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms, s is an integer of 0-6, t is an integer of 0-5, and u is an integer of 1-3.

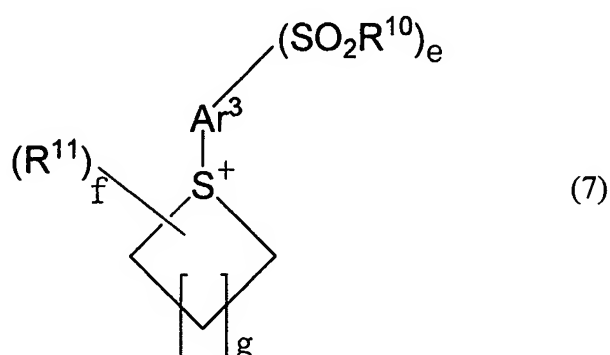
9. (Currently Amended) An onium salt compound having a cationic moiety represented by the following formula (6),



wherein A represents an iodine atom or a sulfur atom, when A is an iodine atom, m is 1 or 2 and n is 0 or 1, provided that (m+n)=2, and x is an integer of 1-10, and when A is a sulfur atom, m is 1-3 and n is 0-2, provided that (m+n) = 3, and x is an integer of 1-15; Ar¹ represents a substituted or unsubstituted aromatic hydrocarbon group having 6-20 carbon atoms with a valence of 1 to (x+1) or a substituted or unsubstituted heterocyclic group having 3-20 atoms with a valence of 1 to (x+1), Ar² represents a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms; R⁸ and R⁹ individually represent a substituted or unsubstituted alkyl group having 1-20 carbon atoms or a substituted or unsubstituted monovalent alicyclic group having 3-20 carbon

atoms, or R^8 and R^9 may form, in combination and together with one carbon atom and two oxygen atoms in the formula, a group having a cyclic structure with 4-10 atoms; and v and w are respectively the integers of 0-5, satisfying the formula $(v+w) \geq 1$.

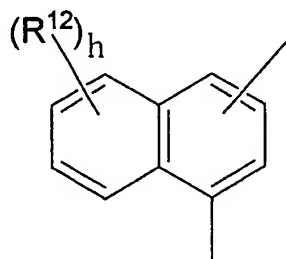
10. (Withdrawn) An onium salt compound having a cation moiety of the following formula (7),



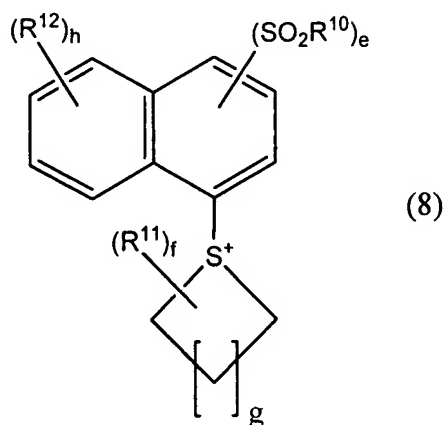
wherein Ar^3 represents a substituted or unsubstituted divalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted divalent heterocyclic group having 3-20 atoms, R^{10} and R^{11} individually represent a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group $-N(R^{5'})_2$ wherein $R^{5'}$ individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-

20 carbon atoms, or a substituted or unsubstituted, monovalent heterocyclic group having 3-20 atoms, or two $R^{5'}$ groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms, e is an integer of 1-10, f is an integer of 0-6, and g is an integer of 0-3.

11. (Withdrawn) The onium salt compound according to claim 10, wherein the group Ar^3 in the formula (7) is represented by the following formula,



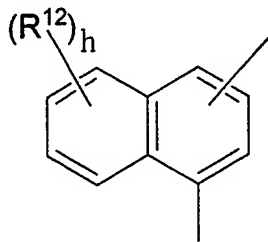
and the cationic moiety is represented by the following formula (8) ,



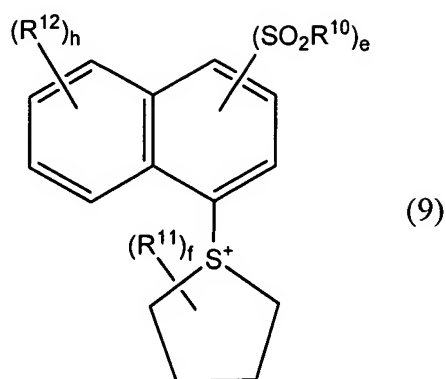
wherein R^{10} , e, R^{11} , f, and g are respectively the same as R^{10} , e, R^{11} , f, and g defined for the above formula (7), R^{12} represents a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or

unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group $-N(R^{6'})_2$, wherein $R^{6'}$ individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted, monovalent heterocyclic group having 3-20 atoms, or two $R^{6'}$ groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms, and h is an integer of 0-6.

12. (Withdrawn) The onium salt compound according to claim 10, wherein the group Ar^3 in the formula (7) is represented by the following formula,

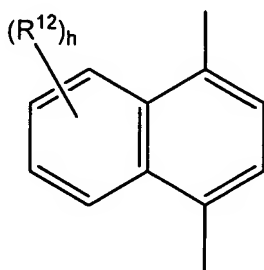


and the cationic moiety is represented by the following formula (9)

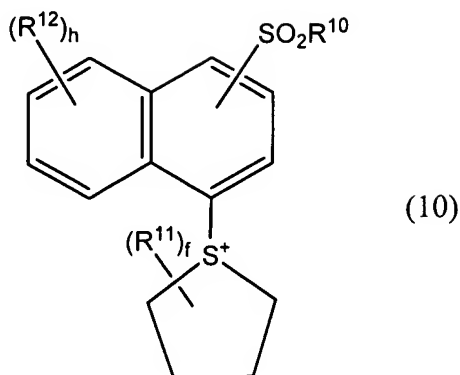


wherein R^{10} , e , R^{11} , f , R^{12} and h are the same as R^{10} , e , R^{11} , f , R^{12} and h defined for the above formula (8).

13. (Withdrawn) The onium salt compound according to claim 10, wherein the group Ar^3 in the formula (7) is represented by the following formula,



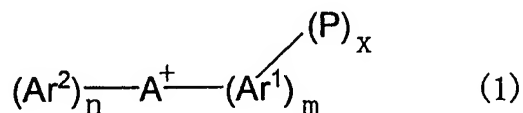
$e=l$, and the cationic moiety is represented by the following formula (10),



wherein R^{10} , R^{11} , f , R^{12} and h are the same respectively as R^{10} , R^{11} , f , R^{12} and h defined for the above formula (8).

14. (Previously Presented) A positive tone radiation-sensitive resin composition comprising:

(A) at least one onium salt compound having a cation moiety of the following formula (1),



wherein A represents an iodine atom or a sulfur atom, when A is an iodine atom, m is 1 or 2 and n is 0 or 1, provided that $(m+n)=2$, and x is an integer of 1-10, and when A is a sulfur atom, m is 1-3 and n is 0-2, provided that $(m+n) = 3$, and x is an integer of 1-15; Ar^1 represents a substituted or unsubstituted aromatic hydrocarbon group having 6-20 carbon atoms with a valence of 1 to $(x+1)$ or a substituted or unsubstituted heterocyclic group having 3-20 atoms with a valence of 1 to $(x+1)$, Ar^2 represents a substituted or

unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or Ar^1 and Ar^2 mutually bond together with A^+ in the formula to form a group possessing a cyclic structure with 3-8 atoms; and the x-number of P groups bonding to one or more of the m-number of Ar^1 groups individually represent $-\text{O}-\text{SO}_2\text{R}^1$, $-\text{O}-\text{S}(\text{O})\text{R}^2$, or $-\text{SO}_2\text{R}^3$, wherein R^1 , R^2 , and R^3 individually represent a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group $-\text{N}(\text{R}')_2$, wherein R' individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or two R' groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms; and

(B) a resin having an acid-dissociable group and which is insoluble or scarcely soluble in alkali, but which becomes alkali soluble when the acid-dissociable group dissociates.

15. (Original) The positive tone radiation-sensitive resin composition according

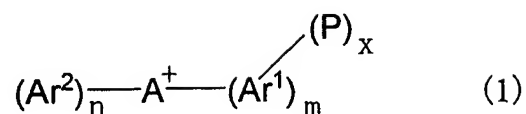
to claim 14, wherein the onium salt compound is selected from the onium salt compounds having $-\text{SO}_2\text{R}^3$ for the group P in the formula (1).

16. (Previously Presented) A positive tone radiation-sensitive resin composition comprising (A) at least one onium salt compound according to Claim 3 as a photoacid generator; and (B) a resin having an acid-dissociable group and which is insoluble or scarcely soluble in alkali, but becomes alkali soluble when the acid-dissociable group dissociates.

17. (Previously Presented) A positive tone radiation-sensitive resin composition comprising: (A) at least one onium salt compound according to Claim 5 as a photoacid generator; and (B) a resin having an acid-dissociable group and which is insoluble or scarcely soluble in alkali, but becomes alkali soluble when the acid-dissociable group dissociates.

18. (Withdrawn) A positive tone radiation-sensitive resin composition comprising: (A) at least one photoacid generator selected from the onium salt compounds according to claim 10 as a photoacid generator for photoresist and (B) a resin having an acid-dissociable group and insoluble or scarcely soluble in alkali, but becomes alkali soluble when the acid-dissociable group dissociates.

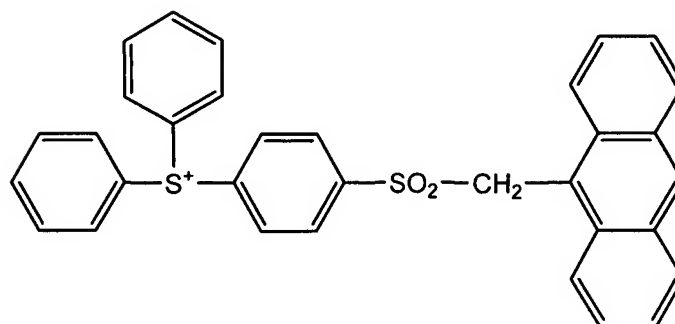
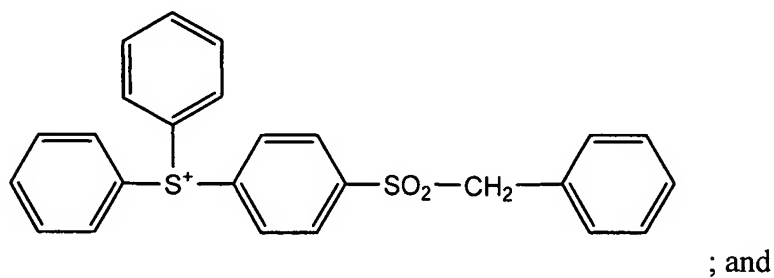
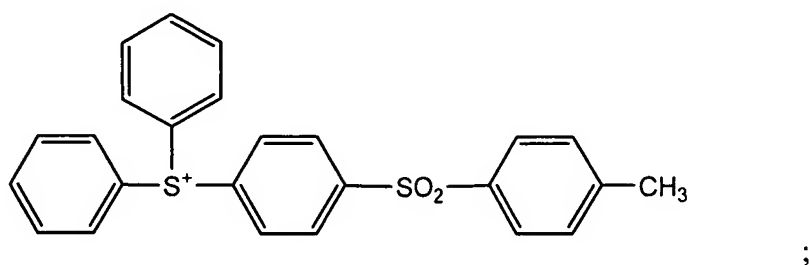
19. (Previously Presented) An onium salt compound having a cation moiety of the following formula (1),



wherein A represents an iodine atom or a sulfur atom, when A is an iodine atom, m is 1 or 2 and n is 0 or 1, provided that (m+n)=2, and x is an integer of 1-10, and when A is a sulfur atom, m is 2 or 3 and n is 0 or 1, provided that (m+n) = 3, and x is an integer of 1-15; Ar¹ represents a substituted or unsubstituted aromatic hydrocarbon group having 6-20 carbon atoms with a valence of 1 to (x+1) or a substituted or unsubstituted heterocyclic group having 3-20 atoms with a valence of 1 to (x+1), Ar² represents a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or Ar¹ and Ar² mutually bond together with A⁺ in the formula to form a group possessing a cyclic structure with 3-8 atoms; and the x-number of P groups bonding to the m-number of Ar¹ groups individually represent -O-SO₂R¹, -O-S(O)R², or -SO₂R³, wherein R¹, R², and R³ individually represent a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted monovalent heterocyclic group having 3-20 atoms, or a group -N(R')₂, wherein R' individually represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1-20 carbon atoms, a substituted or unsubstituted monovalent alicyclic hydrocarbon group having 3-20 carbon atoms, an alkenyl group having 2-20 carbon atoms, a substituted or unsubstituted monovalent aromatic hydrocarbon group having 6-20 carbon atoms, or a substituted or unsubstituted

monovalent heterocyclic group having 3-20 atoms, or two R' groups form, in combination and together with the nitrogen atom in the formula, a group having a cyclic structure with 3-8 atoms.

20. (Previously Presented) An onium salt compound having a cation moiety selected from the group consisting of:



21. (Previously Presented) A positive tone radiation-sensitive resin composition comprising: (A) at least one onium salt compound according to Claim 20 as a photoacid generator; and (B) a resin having an acid-dissociable group and which is insoluble or scarcely soluble in alkali, but becomes alkali soluble when the acid-dissociable group dissociates.